REMARKS

By this Amendment, claims 1-14 and 16-40 are pending.

The Examiner objected to the drawings as the specification did not give explanation of the axis labeling. By the Amendment, the drawing has been deleted, along with certain parts of the specification. No new matter has been added.

The Examiner objected to claims 15, 28, 29 and 39 as being indefinite. By this Amendment, claim 15 has been cancelled and the claims have been amended to conform with U.S. practice.

The Examiner rejected claims 1, 2, 4, 5, 13 and 23-31 as being anticipated by U.S. Patent 5,206,297 (Wernet) and claims 1-3, 6-11, 23, 26 and 27 as being obvious over EP 423602. These rejections are respectfully traversed.

Wernet discloses an antistatic composition made from polymeric alcohols in the form of sulphates mixed with thermoplastic polymers. The result is a certain grade of conductability obtained through hydrolysis of sulphate groups on the surface of the material, due to atmospheric moisture, with oxydriles forming actives which coordinate the atmospheric water molecule. This conductability is not ionic as is the antistatic of the invention. A mass conductability of ionic type is obtained and determined by movement of charges inside the polymer.

EP 423602 discloses a polyphenylene and its copolymers utilizing 0.5-15% alkali metal chloride, preferably with lithium chloride in a styrene resin. The disclosed examples indicate that the lithium chloride is not dissolved in a polymer but only dispersed, in contrast to the present invention. The antistatic affect of the material disclosed in EP '602 is due to interaction between atmospheric humidity with the surface of the material.

The claims are allowable over the prior and favorable actions is eagerly and earnestly solicited. If any issues remain and the Examiner believes a telephone conversation would resolve such issues, the Examiner is urged to contact the undersigned attorney.

A three month extension accompanies this response. If any additional fees are due and owing, the Commissioner is authorized to charge Deposit Account 08-2455.

Respectfully submitted,

by _____
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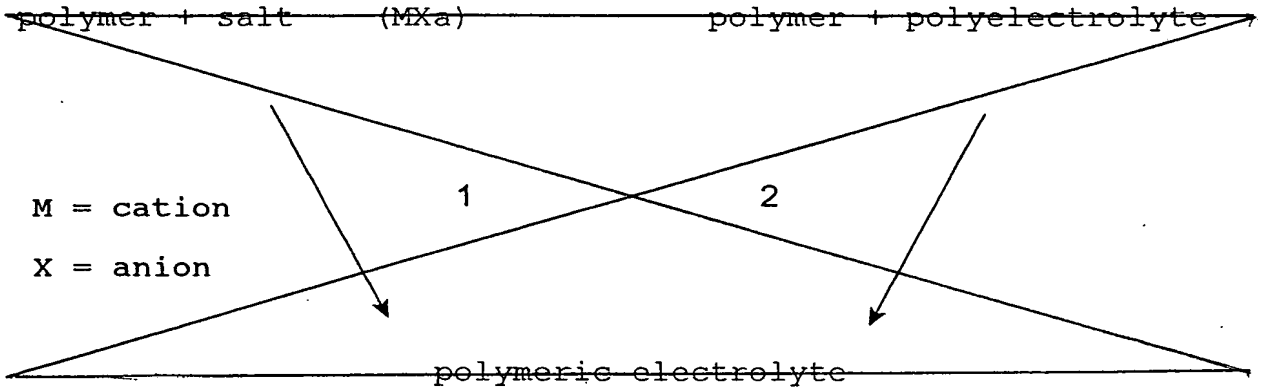
real component of the impedance and the vertical axis represents the imaginary component of the impedance; the frequency increases from right to left).

In its general lines the polymeric material with antistatic properties according to the invention (polymeric electrolyte) can be prepared by the general scheme shown hereinafter, using two different procedures 1) and 2).

Procedure 1) comprises reacting a suitable polymer with a particular salt of the low lattice energy under conditions of absolute absence of moisture. An alkaline metal salt, an alkaline earth metal salt or a salt of a transition metal of block d and f is preferably used.



Procedure 2) comprises doping a suitable polymer with a particular polyelectrolyte under conditions of absolute absence of moisture, in the presence or absence of solvents depending on the type of polymer.

The polymer used for preparing the polymeric electrolyte according to the invention generally consists of macromolecules containing in their chain heteroatoms such as O, N, P, Si, S, Se, able to coordinate the salt ions.

The anhydrous salts are obtained either by decrepitating the corresponding salt hydrates at high temperature under vacuum (less than about 10^{-3} mbar), or by direct synthesis.

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CLAIMS:

1. (Amended) A polymeric material with antistatic properties, [characterised by] comprising a dispersion of ions within a polymeric matrix containing heteroatoms.

2. (Amended) A polymeric material as claimed in claim 1, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of at least one salt.

3. (Amended) A polymeric material as claimed in claim 2, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of at least one inorganic salt.

4. (Amended) A polymeric material as claimed in claim 2, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of at least one organic salt.

5. (Amended) A polymeric material as claimed in claim 2, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of at least one polyelectrolyte.

6. (Amended) A polymeric material as claimed in claim 3, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of a halide.

7. (Amended) A polymeric material as claimed in claim 6, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of a chloride.

8. (Amended) A polymeric material as claimed in claim 7, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of a chloride of an alkaline metal, an alkaline earth metal or a transition metal of block d and f.

9. (Amended) A polymeric material as claimed in claim 3, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of lithium chloride.

10. (Amended) A polymeric material as claimed in claim 3, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of sodium chloride.

11. (Amended) A polymeric material as claimed in claim 3, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of potassium chloride.

12. (Amended) A polymeric material as claimed in claim 5, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of lithium tannate.

13. (Amended) A polymeric material as claimed in claim 5, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of a polymethacrylate.

14. (Amended) A polymeric material as claimed in claim 5, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of a polystyrenesulphonate.

15. (Cancelled)

16. (Amended) A polymeric material as claimed in claim 5, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of poly(sulphonate trimethylene oxyethylene) acid.

17. (Amended) A polymeric material as claimed in claim 5, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of the lithium alcoholate of polyethyleneglycol 400.

18. (Amended) A polymeric material as claimed in claim 5, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of polyallyldimethylammonium salt.

19. (Amended) A polymeric material as claimed in claim 5, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of a cationic chitosan.

20. (Amended) A polymeric material as claimed in claim 5, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of a poly-(4-butylpyridinium)-ethylene salt.

21. (Amended) A polymeric material as claimed in claim 5, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of a poly-(2-N-methylpyridinium)-ethylene salt.

22. (Amended) A polymeric material as claimed in claim 5, [characterised in that] wherein the ions dispersed within the polymeric matrix originate from the dissociation of a polyallylammonium salt.

23. (Amended) A polymeric material as claimed in claim 1, [characterised in that] wherein the polymeric matrix pertains to at least one polymer having, in its chains, polar functional groups or heteroatoms such as O, N, P , Si, S, Se and able to coordinate metal ions and anions.

24. (Amended) A polymeric material as claimed in claim 23, [characterised in that] wherein the polymeric matrix pertains to a plastic material from casein.

25. (Amended) A polymeric material as claimed in claim 23, [characterised in that] wherein the polymeric matrix pertains to a material based on cellulose or its derivatives.

26. (Amended) A polymeric material as claimed in claim 23, [characterised in that] wherein the polymeric matrix pertains to a resin obtained by polycondensation.

27. (Amended) A polymeric material as claimed in claim 26, [characterised in that] wherein the polymeric pertains to a resin included in the group comprising aminoplasts, aniline resins, furan resins, ketone resins, epoxy resins, alkyd resins, polyester resins, polyether resins, polyamide resins, sulphonamide resins, silicones and polythioethers.

28. (Amended) A polymeric material as claimed in claim 1, [characterised in that] wherein the polymeric matrix pertains to a resin obtained by additional polymerization.

29. (Amended) A polymeric material as claimed in claim 28, [characterised in that] wherein the polymeric matrix pertains to a resin included in the group comprising polyvinyl[,] ethers, polyacetals, polyvinylpyrrolidone, coumarin resins and polyacrylic resins.

30. (Amended) A polymeric material as claimed in claim 1, [characterised in that] wherein the polymeric matrix pertains to a resin obtained by polyaddition.

31. (Amended) A polymeric material as claimed in claim 30, [characterised in that] wherein the polymeric matrix pertains to [apolyurethane] a polyurethane resin.

32. (Amended) A method for preparing a polymeric material with antistatic properties claimed in claim 1, [characterised by] wherein introducing into the polymeric matrix of a resin containing heteroatoms, in the absence of moisture, at least one electrolyte having a very high degree of purity in terms of the presence of polar molecules able to bind to the ionic lattice of said electrolyte.

33. (Amended) A method as claimed in claim 32, [characterised by] wherein reacting the resin containing heteroatoms with a salt having low lattice energy.

34. (Amended) A method for preparing a polymeric material with antistatic properties as claimed in claim 32, [characterised by] wherein reacting the resin containing heteroatoms with an inorganic salt.

35. (Amended) A method for preparing a polymeric material with antistatic properties as claimed in claim 32, [characterised by] wherein reacting the resin containing heteroatoms with an organic salt.

36. (Amended) A method as claimed in claim 32, [characterised by] wherein utilizing the polymeric matrix of a resin obtained by polycondensation.

37. (Amended) A method as claimed in claim 32, [characterised by] wherein doping the resin containing heteroatoms with a polyelectrolyte.

38. (Amended) A method as claimed in claim 32, [characterised by] wherein doping the resin containing heteroatoms with a polyelectrolyte in the presence of solvents.

39. (Amended) A method as claimed in claim 32, characterised by utilizing the polymeric matrix of a resin obtained by addition polymerization.

40. (Amended) A method as claimed in claim 32, [characterised by] wherein utilizing the polymeric matrix of a resin obtained by polyaddition.